UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/658,275	09/08/2000	James C. Solinsky	3826-2	3667

		EXAMINER
7590	07/01/2004	SHARON, AYAL I

Nixon & Vanderhye PC
8th Floor
1100 North Glebe Rd
Arlington, VA 22201-4714

ART UNIT	PAPER NUMBER
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DATE MAILED: 07/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/658,275	SOLINSKY, JAMES C.
	Examiner	Art Unit
	Ayal I Sharon	2123

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>06 April 2004</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-52</u> is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-52</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>06 April 2004</u> is/are: a)☐ accepted or b)☒ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All   b)☐ Some * c)☐ None of:

         1.☐ Certified copies of the priority documents have been received.

         2.☐ Certified copies of the priority documents have been received in Application No. _____.

         3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
     Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Introduction

1. Claims 1-52 of U.S. Application 09/658,275 filed on 09/08/2000 are presented for examination. The application claims benefit of provisional application 60/215,762, filed 6/30/2000. In paper #5, filed 4/6/04, Applicant amended the specification, the figures, and Claims 1, 4, 9, 12, 17, 19, 20, 25, 27, 28. New claims 33-52 have been added.

2. In this office action, the rejections of the amended claims have been maintained. The Kanevsky art has been applied to reject Claim 33. In addition, new 35 USC 112 rejections have been applied to all the amended claims, their dependents, and to all new claims.

Drawings

3. This application contains informal drawings (Figs. 2,3,7,8,9) with handwritten elements. The informal drawings filed in this application are acceptable for examination purposes. If the application is allowed, applicant will be required to submit new formal drawings.

Claim Objections

4. Claims 5-8, 13-16 and 48-51 are objected to because they are apparatus claims that depend from method claims. Appropriate correction is required.

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created

doctrine grounded in public policy (a policy reflected in the statute) so as to

prevent the unjustified or improper timewise extension of the "right to exclude"

granted by a patent and to prevent possible harassment by multiple assignees.

See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re*

Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686

F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164

USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644

(CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may

be used to overcome an actual or provisional rejection based on a nonstatutory

double patenting ground provided the conflicting application or patent is shown to

be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may

sign a terminal disclaimer. A terminal disclaimer signed by the assignee must

fully comply with 37 CFR 3.73(b).

6. Claims 1-3 and 5-8, and Claims 9-11 and 13-16 are provisionally rejected under

the judicially created doctrine of obviousness-type double patenting as being

unpatentable over claims 1-2, 6, and 18-21 of copending Application No.

09/658,276. Although the conflicting claims are not identical, they are not

patentably distinct from each other because:

   a. The differences between Claims 1 and 9 in the instant application and

   Claim 1 in Application No. 09/658,276 are: 1) the different intended uses

   identified in the preambles of the claims, and 2) the stored model

   "generates outputs" as opposed to verifying identity. Generating output is

   an inherent step in the verification process.

   b. The differences between Claims 2 and 10 in the instant application and

   Claim 2 in Application No. 09/658,276 are: 1) the different intended uses

   identified in the preambles of the claims, and 2) the stored model

   "generates outputs" as opposed to verifying identity. Generating output is

   an inherent step in the verification process.

   c. The differences between Claims 3 and 11 in the instant application and

   Claim 6 in Application No. 09/658,276 are: 1) the different intended uses

   identified in the preambles of the claims, and 2) the stored model

   "generates outputs" as opposed to verifying identity. Generating output is

   an inherent step in the verification process.

   d. The differences between Claims 5 and 13 in the instant application and

   Claim 18 in Application No. 09/658,276 are: 1) the different intended uses

   identified in the preambles of the claims, and 2) the stored model

   "generates outputs" as opposed to verifying identity. Generating output is

   an inherent step in the verification process.

e. The differences between Claims 6 and 14 in the instant application and Claim 19 in Application No. 09/658,276 are: 1) the different intended uses identified in the preambles of the claims, and 2) the stored model "generates outputs" as opposed to verifying identity. Generating output is an inherent step in the verification process.

f. The differences between Claims 7 and 15 in the instant application and Claim 20 in Application No. 09/658,276 are: 1) the different intended uses identified in the preambles of the claims, and 2) the stored model "generates outputs" as opposed to verifying identity. Generating output is an inherent step in the verification process.

g. The differences between Claims 8 and 16 in the instant application and Claim 21 in Application No. 09/658,276 are: 1) the different intended uses identified in the preambles of the claims, and 2) the stored model "generates outputs" as opposed to verifying identity. Generating output is an inherent step in the verification process.

7. Claims 17-19 and 21-24, and Claims 25-27 and 29-32 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 22-23, 27, and 39-42 of copending Application No. 09/658,276. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

a. The differences between Claims 17 and 25 in the instant application and Claim 22 in Application No. 09/658,276 are: 1) the different intended uses

identified in the preambles of the claims, and 2) the stored model "generates outputs" as opposed to verifying identity. Generating output is an inherent step in the verification process.

b. The differences between Claims 18 and 26 in the instant application and Claim 23 in Application No. 09/658,276 are: 1) the different intended uses identified in the preambles of the claims, and 2) the stored model "generates outputs" as opposed to verifying identity. Generating output is an inherent step in the verification process.

c. The differences between Claims 19 and 27 in the instant application and Claim 27 in Application No. 09/658,276 are: 1) the different intended uses identified in the preambles of the claims, and 2) the stored model "generates outputs" as opposed to verifying identity. Generating output is an inherent step in the verification process.

d. The differences between Claims 21 and 29 in the instant application and Claim 39 in Application No. 09/658,276 are: 1) the different intended uses identified in the preambles of the claims, and 2) the stored model "generates outputs" as opposed to verifying identity. Generating output is an inherent step in the verification process.

e. The differences between Claims 22 and 30 in the instant application and Claim 40 in Application No. 09/658,276 are: 1) the different intended uses identified in the preambles of the claims, and 2) the stored model

"generates outputs" as opposed to verifying identity. Generating output is

an inherent step in the verification process.

f. The differences between Claims 23 and 31 in the instant application and

Claim 41 in Application No. 09/658,276 are: 1) the different intended uses

identified in the preambles of the claims, and 2) the stored model

"generates outputs" as opposed to verifying identity. Generating output is

an inherent step in the verification process.

g. The differences between Claims 24 and 32 in the instant application and

Claim 42 in Application No. 09/658,276 are: 1) the different intended uses

identified in the preambles of the claims, and 2) the stored model

"generates outputs" as opposed to verifying identity. Generating output is

an inherent step in the verification process.

8. This is a <u>provisional</u> obviousness-type double patenting rejection because the

conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 6-8, 14-16, 22-24, 29-31, and 49-51 are rejected under 35 U.S.C. 112,

first paragraph, because the specification, while being enabling for a

mathematical algorithm, does not reasonably provide enablement for an

integrated circuit or "hardware processing engine". The specification does not

enable any person skilled in the art to which it pertains, or with which it is most

nearly connected, to make the invention commensurate in scope with these

claims.

More specifically, the applicants provide mathematical equations from an

algorithm (for example, see specification, pp.27, 29 31-32). Examiner finds that

these could be implemented as a software program, without undue

experimentation, by one of ordinary skill in the art. However, the applicants

provide only minimal instruction as to how to implement the algorithm in

hardware (see Fig.4 and Fig.7). Examiner finds that it would require undue

experimentation by one of ordinary skill in the art of hardware design to

implement the disclosed mathematical algorithm in hardware.

11. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter

which applicant regards as the invention. Independent claim 1 recites "using the

stored model to generate outputs". However, it is not clear what is the output of

this claim. All dependent claims inherit this defect.

12. Claims 9-16, 17-24, and 25-32, and 33-34 are rejected based on the same

reasoning as claims 1-8, _supra_.

    a. Claims 9-16 are method claims that recite the same limitation "using the stored model to generate outputs" as recited in method claims 1-8.

    b. Claims 17-24 are system claims that recite the same limitation "using the stored model to generate outputs" as recited in method claims 1-8.

    c. Claims 25-32 are system claims that recite the same limitation "using the stored model to generate outputs" as recited in method claims 1-8.

    d. Claims 33-34 are system claims that recite the same limitation "using the stored model to generate outputs" as recited in method claims 1-8.

13. Claims 35-51 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Independent claim 35 claims "generating outputs in response to the comparing". However, it is not clear what is the output of this claim. All dependent claims inherit this defect.

14. Claim 52 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Independent claim 52 claims "outputs for outputting outputs based on the comparing". However, it is not clear what is the output of this claim.

Claim Rejections - 35 USC § 102

15. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

16. The prior art used for these rejections is as follows:

17. Grossberg et al., U.S. Patent 4,852, 018. (Henceforth referred to as

"**Grossberg**").

18. Kanevsky et al., U.S. Patent 6,421,453. (Henceforth referred to as "**Kanevsky**").

19. **Claims 1-2, 4-10, 12-18, 20-26, 28-32 and 33-34 are rejected under 35 U.S.C.**

102(e) as being anticipated by Kanevsky.

20. In regards to Claim 1, Kanevsky teaches the following limitations:

1. A method of generating outputs in response to real world stimulation comprising:

capturing two or more simultaneous inputs that are responsive to training stimulation;
(Kanevsky, especially: col.6, lines 57-60; col.3, lines 27-38; col.9, lines 23-61)

synthesizing the captured inputs;
(Kanevsky, especially: col.6, lines 57-60; col.3, lines 27-38; col.9, lines 23-61)

generating a model representation of the synthesized inputs;
(Kanevsky, especially: col.6, lines 57-60; col.3, lines 27-38; col.9, lines 23-61)

storing the generated model; and
(Kanevsky, especially: col.3, lines 27-38; col.9, lines 23-61)

using the stored model to generate outputs in response to real-world stimulation.
(Kanevsky, especially: col.3, lines 27-38; col.9, lines 23-61)

21. In regards to Claim 2, Kanevsky teaches the following limitations:

2.The method according to claim 1, further comprising:

using a forced choice interaction to generate one or more additional inputs;
(Kanevsky, especially: col.1, lines 15-24; col.7, lines 48-67; col.8, lines 1-2; col.9, lines 11-22; col.14, lines 17-24)

capturing the additional inputs; and
(Kanevsky, especially: col.1, lines 15-24; col.7, lines 48-67; col.8, lines 1-2; col.9, lines 11-22; col.14, lines 17-24)

incorporating the additional inputs into the model.
(Kanevsky, especially: col.1, lines 15-24; col.7, lines 48-67; col.8, lines 1-2; col.9, lines 11-22; col.14, lines 17-24)

22. In regards to Claim 4, Kanevsky teaches the following limitations:

4.The method according to claim 1, wherein

the realworld stimulation comprises simultaneous inputs that are compared to the stored model, and
(Kanevsky, especially: col.3, line 27 to col.4, line 18;)

the outputs are based on the results of the comparison.
(Kanevsky, especially: col.3, line 27 to col.4, line 18;)

23. In regards to Claim 5, Kanevsky teaches the following limitations:

5.A computer readable medium for storing computer-executable instructions for performing the method of claim 1.
(Kanevsky, especially: col.9, lines 23-60;)

24. In regards to Claim 6, Kanevsky teaches the following limitations:

6.A hardware processing engine configured to perform the method of claim 1.
(Kanevsky, especially: col.9, lines 23-60;)

25. In regards to Claim 7, Kanevsky teaches the following limitations:

7.An application specific integrated circuit configured to perform the method of claim 1.
(Kanevsky, especially: col.9, lines 23-60;)

26. In regards to Claim 8, Kanevsky teaches the following limitations:

8.A net list integrated into other integrated circuits to perform the method of claim 1.
(Kanevsky, especially: col.9, lines 23-60;)

27.Claims 9-16, 17-24, and 25-32 are rejected based on the same reasoning as

claims 1-8, _supra_.

    a. Claims 9-16 are method claims reciting the equivalent limitations as are

       recited in method claims 1-8 and taught throughout Kanevsky. The

       preamble to Claim 9 recites "control command stimulation" as opposed to

       the "real world stimulation" of claim 1, however, these are functionally

       equivalent and a matter of design choice.

    b. Claims 17-24 are system claims reciting the equivalent limitations as are

       recited in method claims 1-8 and taught throughout Kanevsky.

    c. Claims 25-32 are system claims reciting the equivalent limitations as are

       recited in method claims 1-8 and taught throughout Kanevsky. The

       preamble to Claim 25 recites "control command stimulation" as opposed to

       the "real world stimulation" of claim 1, however, these are functionally

       equivalent and a matter of design choice.

28.In regards to Claim 33, Kanevsky teaches the following limitations:

Claim 33 (New):A method of generating outputs in response to real world
stimulation comprising:

    capturing two or more simultaneous user inputs that are responsive to training
stimulation;
(Kanevsky, especially: col.6, lines 57-60; col.3, lines 27-38; col.9, lines 23-61)

    synthesizing the captured inputs through a dynamic, model-based response generation
from the captured inputs with correlated congruence to two or more data input channels;
(Kanevsky, especially: col.6, lines 57-60; col.3, lines 27-38; col.9, lines 23-61)

    storing the model representation of the synthesis generation as mapped into an N-
dimensional representation; and

(Kanevsky, especially: col.6, lines 57-60; col.3, lines 27-38; col.9, lines 23-61)

using the stored model to generate outputs in response to real world stimulation through
temporally sensitive similarity matching.
(Kanevsky, especially: col.3, lines 27-38; col.9, lines 23-61)

29. Claims 1-2, 4-10, 12-18, 20-26, and 28-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Grossberg.

30. In regards to Claim 1, Grossberg teaches the following limitations:

1. A method of generating outputs in response to real world stimulation
comprising:

capturing concurrent inputs that are responsive to training stimulation;
(Grossberg, especially: col.1, line 44 to col.2, line 69)

storing a model representing a synthesis of the captured inputs; and
(Grossberg, especially: col.1, line 44 to col.2, line 69)

using the stored model to generate outputs in response to real-world stimulation.
(Grossberg, especially: col.1, line 44 to col.2, line 69)

31. In regards to Claim 2, Grossberg teaches the following limitations:

2. The method according to claim 1, further comprising:

using a forced choice interaction to generate one or more additional inputs;
(Grossberg, especially: col.2, lines 12-16 "... elicit unconditional movements ...)

capturing the additional inputs; and
(Grossberg, especially: col.2, lines 12-16 "... elicit unconditional movements ...)

incorporating the additional inputs into the model.
(Grossberg, especially: col.2, lines 12-16 "... elicit unconditional movements ...)

32. In regards to Claim 4, Grossberg teaches the following limitations:

4. The method according to claim 1, wherein

the realworld stimulation comprises concurrent inputs that are compared to the
stored model, and
(Grossberg, especially: col.1, line 44 to col.2, line 69)

the outputs are based on the results of the comparison.
(Grossberg, especially: col.1, line 44 to col.2, line 69)

33. In regards to Claim 5, Grossberg teaches the following limitations:

5. A computer readable medium for storing computer-executable instructions for performing the method of claim 1.
(Grossberg, especially: col.1, line 44 to col.2, line 69)

It is inherent that the algorithms taught by Grossberg can be implemented in

either hardware or software. Examiner notes that according to Andrew

Tanenbaum's Structured Computer Organization, p.11:

> A central theme of this book that will occur over and over again is:
>
> *Hardware and software are logically equivalent.*
>
> Any operation performed by software can also be built directly into the hardware and any instruction executed by the hardware can also be simulated in software. The decision to put certain functions in hardware and others in software is based on such factors as cost, speed, reliability, and frequency of expected changes.

34. In regards to Claim 6, Grossberg teaches the following limitations:

6. A hardware processing engine configured to perform the method of claim 1.
(Grossberg, especially: col.1, line 44 to col.2, line 69)

It is inherent that the algorithms taught by Grossberg can be implemented in

either hardware or software. Examiner notes that according to Andrew

Tanenbaum's Structured Computer Organization, p.11:

> A central theme of this book that will occur over and over again is:
>
> *Hardware and software are logically equivalent.*
>
> Any operation performed by software can also be built directly into the hardware and any instruction executed by the hardware can also be simulated in software. The decision to put certain functions in hardware and others in software is based on such factors as cost, speed, reliability, and frequency of expected changes.

35. In regards to Claim 7, Grossberg teaches the following limitations:

7.An application specific integrated circuit configured to perform the method of claim 1.
(Grossberg, especially: col.1, line 44 to col.2, line 69)

It is inherent that the algorithms taught by Grossberg can be implemented in

either hardware or software. Examiner notes that according to Andrew

Tanenbaum's Structured Computer Organization, p.11:

> A central theme of this book that will occur over and over again is:
>
> *Hardware and software are logically equivalent.*
>
> Any operation performed by software can also be built directly into the
> hardware and any instruction executed by the hardware can also be
> simulated in software. The decision to put certain functions in hardware
> and others in software is based on such factors as cost, speed, reliability,
> and frequency of expected changes.

36. In regards to Claim 8, Grossberg teaches the following limitations:

8.A net list integrated into other integrated circuits to perform the method of claim 1.
(Grossberg, especially: col.1, line 44 to col.2, line 69)

It is inherent that the algorithms taught by Grossberg can be implemented in

either hardware or software. Examiner notes that according to Andrew

Tanenbaum's Structured Computer Organization, p.11:

> A central theme of this book that will occur over and over again is:
>
> *Hardware and software are logically equivalent.*
>
> Any operation performed by software can also be built directly into the
> hardware and any instruction executed by the hardware can also be
> simulated in software. The decision to put certain functions in hardware
> and others in software is based on such factors as cost, speed, reliability,
> and frequency of expected changes.

37. Claims 9-16, 17-24, and 25-32 are rejected based on the same reasoning as

claims 1-8, *supra*.

a. Claims 9-16 are method claims reciting the equivalent limitations as are recited in method claims 1-8 and taught throughout Grossberg. The preamble to Claim 9 recites "control command stimulation" as opposed to the "real world stimulation" of claim 1, however, a "control command stimulation" inherently takes place in the "real world".

b. Claims 17-24 are system claims reciting the equivalent limitations as are recited in method claims 1-8 and taught throughout Grossberg.

c. Claims 25-32 are system claims reciting the equivalent limitations as are recited in method claims 1-8 and taught throughout Grossberg. The preamble to Claim 25 recites "control command stimulation" as opposed to the "real world stimulation" of claim 1, however, a "control command stimulation" inherently takes place in the "real world".

Claim Rejections - 35 USC § 103

38. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

39. The prior art used for these rejections is as follows:

40. Grossberg et al., U.S. Patent 4,852, 018. (Henceforth referred to as "**Grossberg**").

41. Kanevsky et al., U.S. Patent 6,421,453. (Henceforth referred to as "**Kanevsky**").

42. Estes et al. U.S. Patent 5,301,284. (Henceforth referred to as "**Estes**").

43. **Claims 3, 11, 19 and 27 are rejected under 35 U.S.C. 103(a) as being**

   unpatentable over Kanevsky in view of Estes.

44. In regards to Claim 3, Kanevsky teaches software modeling and diagramming.

   However, Kanevsky does not expressly teach the following limitations:

   3. The method according to claim 1, wherein the model comprises a worldline of linked object
   diagram exemplars in an N-dimensional space.

   Estes, on the other hand, does expressly teach these limitations. (see col.8, line

   53 to col.11, line 16).

   It would have been obvious to one of ordinary skill in the art at the time the

   invention was made to modify the teachings of Kanevsky with those of Estes,

   because "A long felt need exists for a synthetic method which distinguishes

   between the essentials of a problem and the formulation of a solution. The

   separation of problem space formulation and formulation of solution strategies

   which navigate problem space relationships requires a mechanized method

   which can be visualized." (Estes, col.8, lines 9-15)

45. Claims 11, 19 and 27 are rejected based on the same reasoning as claim 3,

   supra.

   a. Claim 11 is a method claim reciting the equivalent limitations as are

      recited in method claim 3 and taught throughout Kanevsky and Estes. The

      preamble to Claim 9 recites "control command stimulation" as opposed to

the "real world stimulation" of claim 1, however, a "control command

stimulation" inherently takes place in the "real world".

b. Claim 19 is a system claim reciting the equivalent limitations as are recited

in method claim 3 and taught throughout Kanevsky and Estes.

c. Claim 27 is a system claim reciting the equivalent limitations as are recited

in method claim 3 and taught throughout Kanevsky and Estes. The

preamble to Claim 9 recites "control command stimulation" as opposed to

the "real world stimulation" of claim 1, however, a "control command

stimulation" inherently takes place in the "real world".

46. **Claim 3, 11, 19 and 27 are rejected under 35 U.S.C. 103(a) as being**

unpatentable over Grossberg in view of Estes.

47. In regards to Claim 3, Grossberg teaches software modeling and diagramming.

However, Grossberg does not expressly teach the following limitations:

3. The method according to claim 1, wherein the model comprises a worldline of linked object
diagram exemplars in an N-dimensional space.

Estes, on the other hand, does expressly teach these limitations. (see pcol.8, line

53 to col.11, line 16).

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify the teachings of Grossberg with those of Estes,

because "A long felt need exists for a synthetic method which distinguishes

between the essentials of a problem and the formulation of a solution. The

separation of problem space formulation and formulation of solution strategies

which navigate problem space relationships requires a mechanized method

which can be visualized." (Estes, col.8, lines 9-15)

48. Claims 11, 19 and 27 are rejected based on the same reasoning as claim 3,

supra.

    a. Claim 11 is a method claim reciting the equivalent limitations as are

       recited in method claim 3 and taught throughout Grossberg and Estes.

       The preamble to Claim 9 recites "control command stimulation" as

       opposed to the "real world stimulation" of claim 1, however, these are

       functionally equivalent and a matter of design choice.

    b. Claim 19 is a system claim reciting the equivalent limitations as are recited

       in method claim 3 and taught throughout Grossberg and Estes.

    c. Claim 27 is a system claim reciting the equivalent limitations as are recited

       in method claim 3 and taught throughout Grossberg and Estes. The

       preamble to Claim 25 recites "control command stimulation" as opposed to

       the "real world stimulation" of claim 1, however, these are functionally

       equivalent and a matter of design choice.

Response to Amendment

Re: Drawings

49. Examiner acknowledges the Applicant's amendment to the drawings to correct

the following problems:

    a. Fig.2 identification is obscured by the "Personal Digital 10" notation.

b. Fig.3 arrow(s) are needed between elements 14 and 15.

However, these corrections, in addition to the corrections made to Figures 7,8,

and 9, are handwritten. Therefore, a new objection, based on the informalities in

these drawings, has been added.

Re: Specification

50. Examiner acknowledges the Applicant's amendment to the specification, and has

withdrawn the relevant objection given in the previous office action.

Re: Claim Objections

51. Examiner acknowledges the Applicant's amendment to Claims 19 and 27, and

has withdrawn the relevant objections given in the previous office action.

52. Examiner is maintaining the objections to claims 5-8 and 13-16, which are

apparatus claims that depend from method claims. In regards to the patents cited

by applicant in the arguments of paper #5, p.13 (U.S. Patent No. 6,714,215 and

U.S. Patent 6,711,715), the Examiner is not permitted to comment on the validity

of an issued U.S. patent. Examiner refers the Applicant to MPEP §2106, and

more specifically to its citation of *In re Alappat*, 33 F.3d 1526, 1540, 31 USPQ2d

1545, 1554 (Fed. Cir. 1994) (in banc), as follows:

> Contrary to suggestions by the Commissioner, this court's precedents do not
> support the Board's view that the particular apparatus claims at issue in this
> case may be viewed as nothing more than process claims.

While the topic of discussion of MPEP §2106 (means plus function claims) is not exactly related to the issue at hand, Examiner finds that the cited section of *In re Alappat* is relevant to the issue at hand. Examiner interprets the cited section of *In re Alappat* as implying that apparatus and method claims are interpreted differently and therefore claims should fall into one category or the other. Examiner therefore maintains the rejection.

Re: Double Patenting

53. Applicant requested (paper #5, p.13) that the Examiner reconsider the double patenting rejection in light of the amendments made in this office action and in the 09/658,267 application. Examiner finds that the Applicant's amendment does not overcome the original issues raised by the Examiner in the original rejection. The examiner is therefore maintaining the double patenting rejections.

Claim Rejections - 35 USC § 112

54. Applicant argues (paper #5, pp.13-14) that the rejections based on 35 USC § 112, first paragraph should be withdrawn because a person skilled in the art would have been able to make the claimed invention in an integrated circuit or hardware processing engine because:

> ... with the advent of mathematical languages, such as Mathematica®, mathematical equations can be directly converted to computer processing code algorithms. In addition, using Handel-C®, compilable C code can be converted into hardware net-lists.

However, Examiner also notes that no written description or enablement
to this effect exists in the originally filed specification.

While this methodology may work in theory, there is no evidence of
reduction to practice. Applicant's lack of written description in the specification
raises the issue of undue experimentation to make the Handel-C or Mathematica
version of the algorithm actually work. Examiner is therefore maintaining the
rejections.

Claim Rejections - 35 USC § 102 – Kanevsky et al. reference

55. Applicants unpersuasively argue (paper #5, p.15) that:

> Rather than using a sequence of extracted gestures, claims 1, 9, 17 and
> 25 describe methods and systems in which, among other things, two or
> more simultaneous inputs (by way of example, simultaneously speaking
> one's name and signing one's name) are captured and a model is
> generated that represents a synthesis of these inputs.

> These features are not disclosed in Kanevsky et al., and thus Kanevsky et
> al. cannot anticipate claims 1, 9, 17 and 25.

Examiner's definitions for the terms "simultaneous", "concurrent", and "synthesis"
are as follows (taken from the American Heritage Dictionary of the English
Language, 4th ed., © 2000 by the Houghton Mifflin Co.):

> Simultaneous: Happening, existing, or done at the same time. See
> synonyms at contemporary.

> Concurrent: Happening at the same time as something else. See
> synonyms at contemporary.

> Synthesis: the combining of separate elements or substances to form a
> coherent whole.

Based on these definitions, examiner finds "simultaneous" and "concurrent" to be

synonymous. Examiner also interprets the term "synthesis" according to its

broadest reasonable interpretation.

Examiner respectfully disagrees with Applicant's assertion in the above-

cited text that "These features are not disclosed in Kanevsky et al." Kanevsky et

al. expressly teaches the following (see col.6, lines 57-67, emphasis added):

> In addition to the use of behavioral passwords to recognize an individual,
> **the invention also contemplates the concurrent use of additional**
> **biometric and/or non-biometric features.** The use of additional features
> provides an added measure of security with regard to computer / facility /
> service access. Examples of such biometric features include facial bone
> structure, signature, face temperature infrared pattern, hand geometry,
> writing instrument velocity, writing instrument pressure, fingerprint, and
> retinal print, to name a few. **These and other biometric features**
> **pertaining to a particular user may also be stored in user profile**
> **database.**

Examiner finds that the "concurrent" use of several biometric and/or non-

biometric features as "an added measure of security with regard to computer /

facility / service access" reads upon the claimed limitation. Examiner finds that

the combination of the behavioral passwords and biometric and/or non-biometric

features into a single user profile inherently constitutes a form of "synthesis"

(when the term "synthesis" is given the broadest reasonable interpretation).

56. In response to applicant's argument that the references fail to show certain

features of applicant's invention, it is noted that the features upon which applicant

relies are not recited in the rejected claim(s). Although the claims are interpreted

in light of the specification, limitations from the specification are not read into the

claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Examples of these unclaimed features are:

a. "The example systems and methods described in the subject patent application use an entirely new approach to sensor recognition, which requires no predetermined classification or frame time measurements for a particular biometric mode. ... Here the recognition is based on the object-diagramed structures within the constructed space, ***as a memory model of the individual*** ... The example systems and methods use biometric sensing to establish an emotive, thinking and memory model of an individual, establishing a recognition space not disclosed or suggested by Kanevsky et al." (See paper #5, pp.15-16).

b. "In addition, the example systems and methods described in the present patent application can use time frames significantly different from those required for implementing the Kanevsky et al. system." (See paper #5, p.16)

c. "Kanevsky et al. does not teach or even remotely suggest synthesizing the inputs to provide, by way of example, a first worldline of linked object diagram exemplars in N-dimensional space based on the inputs and then comparing the worldline to subsequent inputs." (See paper #5, p.18)

d. "Many of the prior art references identified in the subject patent application utilize sequences of frames and 2-D database recognition structures, with classification trees, which are not that different from the sequenced approach of Kanevsky etal. In contrast, the illustrative example embodiments of the subject patent application use concurrent inputs as a simultaneous set of inputs, which have no sequenced segmentation, and for example, achieve recognition through the similarity of the human memory model, parameterized from a previous, response-stimulation process." (See paper #5, p.18)

e. "One aspect the example approach described in this application is in the mathematical complexity of the model representation, comprising an N-D space, for N>2, without the need for synchronizing a segmentation of input signals ..." (See paper #5, p.19)

57. Applicants also unpersuasively argue (paper #5, p.18) that:

The pending claims refer to, among other things, the simultaneous capture of inputs (such as temporally varying inputs) that are synthesized to generate a model representation. As noted above, Kanevsky et al. uses

sequences of individual attributes, not the sequence of two or more attributes.

Examiner respectfully disagrees. Kanevsky et al. expressly teaches the following (see col.6, lines 57-67, emphasis added):

> In addition to the use of behavioral passwords to recognize an individual, **the invention also contemplates the concurrent use of additional biometric and/or non-biometric features.** The use of additional features provides an added measure of security with regard to computer / facility / service access. Examples of such biometric features include facial bone structure, signature, face temperature infrared pattern, hand geometry, writing instrument velocity, writing instrument pressure, fingerprint, and retinal print, to name a few. **These and other biometric features pertaining to a particular user may also be stored in user profile database.**

Examiner finds that the "concurrent" use of several biometric and/or non-biometric features as "an added measure of security with regard to computer / facility / service access" reads upon the claimed limitation. Examiner finds that the combination of the behavioral passwords and biometric and/or non-biometric features into a single user profile inherently constitutes a form of "synthesis" (when the term "synthesis" is given the broadest reasonable interpretation).

Claim Rejections - 35 USC § 102 – Grossberg et al. reference

58. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the

claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Examples of these unclaimed features are:

a. "... a human memory model, ... [or the] use [of] such a model in customization for synthesizing the specific human response ..." (See paper #5, p.20).

b. "... the representation of real world objects as a worldline in the space of atomic point pathways ... " (See paper #5, p.20)

59. Applicants also unpersuasively argue (paper #5, p.20) that:

Among other things, there is no synthesis of simultaneous inputs for model construction as specified in the pending claims ...

Examiner respectfully disagrees. Grossberg et al. expressly teaches the following

(see col.1, lines 55-63, emphasis added):

In one circuit, a system learns how to correct combinations of visual information detected by a photo-detection device, encoded in photo-detection or retinotopic coordinates, and present-position of the photo-detection device information, encoded in motor coordinates, into an egocentric or body-centric invariant, self-regulating target position map. In other words, combinations of visual and present-position signals are used to relearn a new globally self-consistent target position map.

Examiner finds that the "... combinations of visual information detected by a

photo-detection device" correspond to the claimed "... two or more simultaneous

inputs." Moreover, Examiner interprets that the use of such visual input

information for creating a "self-regulating target position map" constitutes a

"synthesis of simultaneous inputs for model construction", as claimed by the

Applicant.

Claim Rejections - 35 USC § 103

60. Applicant unpersuasively argues (paper #5, p.20) that "Estes et al. does not

remedy the above-noted deficiencies of the Kanevsky et al. and Grossberg

patents. As describe in detail in the responses to Applicant's arguments (above),

Examiner respectfully disagrees with Applicant's assertion that that there are

"deficiencies" in the Kanevsky et al. and Grossberg patents.

61. Applicant also unpersuasively argues (paper #5, p.21) that "In addition, Estes et

al. does not disclose or suggest the representation of real world objects as a

worldline in, for example, the space of atomic point pathways." Examiner

respectfully disagrees. Estes expressly teaches the following (see col.9, line 63

to col.10, line 7):

> Using the frame and the object descriptor, the present invention uses
> means for generating dimensional-spatial locations of the N-dimensional
> object space. The frame data is used to generate an object selector for
> each dimensional-spatial location in the N-dimensional object space. The
> dimensional-spatial locations and the object selectors are used to
> generate a virtual image of the N-dimensional object space."

The definition for "world line" according to Eric W. Weisstein's MathWorld - A

Wolfram Web Resource (© 1999 CRC Press LLC) is as follows: "the path of an

object through phase space." Examiner finds that the since Estes teaches

"generating dimensional-spatial locations of the N-dimensional object space" for

one frame, doing so for many frames would inherently generate "world lines."

Conclusion

62. Claims 35-52 recite subject matter that differentiates the invention from the cited prior art. Moreover, the recently filed amendment (paper #5) argues features that are not claimed. Amendments to claims that incorporated these features would be favorably considered if the outstanding 35 USC 112 and 35 USC 101 issues were to be resolved.

63. Applicant's arguments filed 4/6/04 have been fully considered but they are not persuasive.

64. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Correspondence Information

Any inquiry concerning this communication or earlier communications from

the examiner should be directed to Ayal I. Sharon whose telephone number is

(703) 306-0297. The examiner can normally be reached on Monday through

Thursday, and the first Friday of a biweek, 8:30 am – 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the

examiner's supervisor, Kevin Teska can be reached on (703) 305-9704. Any

response to this office action should be mailed to:

Director of Patents and Trademarks
Washington, DC 20231

Hand-delivered responses should be brought to the following office:

4th floor receptionist's office
Crystal Park 2
2121 Crystal Drive
Arlington, VA

Fax: (703) 872-9306

Any inquiry of a general nature or relating to the status of this application

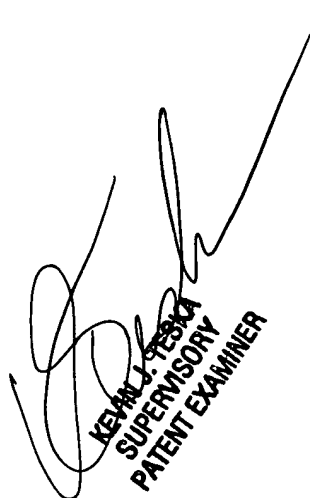or proceeding should be directed to the receptionist, whose telephone number is:

(703) 305-3900.

Ayal I. Sharon

Art Unit 2123

June 24, 2004

KEVIN J. TESKA
SUPERVISORY
PATENT EXAMINER